What is claimed is:

1.   A ring network for transporting data packets between network devices, the ring network comprising:

a number of ring switches, each ring switch having at least one ring port, at least

5   one local port and at least one table that self learns which network devices are associated with each port of the ring switch based on a selected source identifier from the packets processed by the ring switch;

the at least one ring port of each ring switch being coupled to a ring port of another ring switch in the ring network;

10   wherein the ring switch switches data packets between its ring and local ports to direct the data packets to specified network devices associated with the at least one local port of the ring switches in the ring network; and

wherein the ports of the ring switches are configured such that data packets received at the at least one ring port and the at least one local port that are not destined

15   for a network device associated with the at least one local port of the ring switch are switched to another ring switch on the ring network based on the at least one table.

2.   The ring network of claim 1, wherein the selected source identifier comprises a media access control (MAC) address.

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3.   The ring network of claim 1, wherein the selected source identifier comprises an Internet Protocol (IP) address.

4.   The ring network of claim 1, wherein the selected source identifier comprises at

25   least a portion of a hierarchical address.

5.   The ring network of claim 1, wherein the selected source identifier comprises a port number of a universal datagram protocol.

6.   The ring network of claim 1, wherein the selected source identifier comprises a combination of two or more identifiers at the same or different protocol levels for the data packet.

5   7.   The ring network of claim 1, wherein local ports or selected devices on selected local ports of selected ring switches are associated with a common identifier.

8.   The ring network of claim 7, wherein the common identifier is prepended, postpended, or included in packets.

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9.   The ring network of claim 8, wherein the ring switch removes the common identifier before transmitting the packet out the local port.

10.   The ring network of claim 1, wherein the ring switches prepend, postpend or

15 include an identifier to packets that are to be multicast to a number of network devices.

11.   A ring switch for a ring network, the ring switch comprising:
    at least one ring port that is coupleable to transport data packets in a ring network;

20   at least one local port that is coupleable to at least one local area network or device;
    at least one table that identifies network devices associated with each port of the ring switch; and
    wherein data packets received at the at least one ring port that are not destined

25 for a network device associated with any of the at least one local ports of the ring switch are switched to another ring switch coupled to the at least one ring port based on the at least one table without the use of a token or encapsulating the packet.

12.   The ring switch of claim 11, wherein the selected source identifier comprises a

media access control (MAC) address.

13.   The ring switch of claim 11, wherein the selected source identifier comprises an Internet Protocol (IP) address.

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14.   The ring switch of claim 11, wherein the selected source identifier comprises at least a portion of a hierarchical address.

15.   The ring switch of claim 11, wherein the selected source identifier comprises a
10   port number of a universal datagram protocol.

16.   The ring switch of claim 11, wherein the selected source identifier comprises a combination of two or more identifiers at different protocol levels for the data packet.

15   17.   The ring switch of claim 11, wherein local ports or selected devices on selected local ports of selected ring switches are associated with a common identifier.

18.   The ring switch of claim 17, wherein the common identifier is prepended, postpended, or included in packets.

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19.   The ring switch of claim 18, wherein the ring switch removes the common identifier before transmitting the packet out the local port.

20.   The ring switch of claim 11, wherein the ring switches prepend, postpend or
25   include an identifier to packets that are to be multicast to a number of network devices.

21.   A ring switch for a ring network, the ring switch comprising:
        at least one ring port that is coupleable to transport data packets over a ring of ring switches;

at least one local port that is coupleable to at least one local area network or device;

at least one table that stores the identifiers of network devices associated with the at least one ring port and the at least one local port;

5   wherein the ring switch allows data packets received at the ring port to be retransmitted out the ring port of the switch so that data packets can be forwarded on to other ring switches in the ring network based on the at least one table; and

a circuit associated with the at least one ring port that removes incoming data packets that have a source identifier that corresponds to a network device associated

10   with the at least one local port of the switch.

22.   The ring switch of claim 21, wherein the selected source identifier comprises a media access control (MAC) address.

15   23.   The ring switch of claim 21, wherein the selected source identifier comprises an Internet Protocol (IP) address.

24.   The ring switch of claim 21, wherein the selected source identifier comprises at least a portion of a hierarchical address.

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25.   The ring switch of claim 21, wherein the selected source identifier comprises a port number of a universal datagram protocol.

26.   The ring switch of claim 21, wherein the selected source identifier comprises a

25   combination of two or more identifiers at the same or different protocol levels for the data packet.

27.   The ring switch of claim 21, wherein local ports or selected devices on selected local ports of selected ring switches are associated with a common identifier.

28.   The ring switch of claim 27, wherein the common identifier is prepended, postpended, or included in packets.

29.   The ring switch of claim 28, wherein the ring switch removes the common
5   identifier before transmitting the packet out the local port.

30.   The ring switch of claim 21, wherein the ring switches prepend, postpend, or include an identifier to packets that are to be multicast to a number of network devices.

10   31.   A ring switch for a ring network, the ring switch comprising:
        a ring-in port that is coupleable to receive data packets from the ring network;
        a ring-out port that is coupleable to provide data packets to the ring network;
        at least one local port that is coupleable to a local area network;
        at least one table to track the a selected identifier of network devices associated
15   with the ports of the ring switch; and
        wherein the table associates the selected identifier of network devices with the ring-out port when data packets are received at the ring-in port.

32.   The ring switch of claim 31, wherein the selected identifier comprises a media
20   access control (MAC) address.

33.   The ring switch of claim 31, wherein the selected identifier comprises an Internet Protocol (IP) address.

25   34.   The ring switch of claim 31, wherein the selected identifier comprises at least a portion of a hierarchical address.

35.   The ring switch of claim 31, wherein the selected identifier comprises a port number of a universal datagram protocol.

36.   The ring switch of claim 31, wherein the selected identifier comprises a combination of two or more identifiers at the same or different protocol levels for the data packet.

5   37.   The ring switch of claim 31, wherein local ports or selected devices on selected local ports of selected ring switches are associated with a common identifier.

38.   The ring switch of claim 37, wherein the common identifier is prepended, postpended, or included in packets.

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39.   The ring switch of claim 38, wherein the ring switch removes the common identifier before transmitting the packet out the local port.

40.   The ring switch of claim 31, wherein the ring switches prepend, postpend or

15   include an identifier to packets that are to be multicast to a number of network devices.

41.   A method for building a table for a port of a ring switch in a ring network, the method comprising:

        receiving a data packet at a first port of the ring switch;

20   reading a selected source identifier from the data packet; and

        storing the source identifier in a table for the ring switch that indicates that the data packet originated from a network device associated with a second, different port of the switch so as to allow unidirectional transmission on the ring network.

25   42.   The method of claim 41, wherein reading a selected source identifier comprises reading a media access control (MAC) address from an Ethernet packet.

43.   The method of claim 41, wherein reading a selected source identifier comprises reading a Internet Protocol (IP) address.

44.   The method of claim 41, wherein reading a selected source identifier comprises reading at least a portion of a hierarchical address.

45.   The method of claim 41, wherein reading a selected source identifier comprises

5   reading a port number of a universal datagram protocol.

46.   The method of claim 41, wherein reading a selected source identifier comprises reading a combination of two or more identifiers at different protocol levels for the data packet.

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47.   A method for removing data packets from a ring network, the method comprising:

        receiving a data packet at a ring port of a ring switch of the ring network;

        reading a selected source identifier from the data packet;

15   comparing the source identifier with the at least one table of the ring switch, wherein the at least one table indicates which identifiers are associated with each port of the switch; and

        when the source identifier corresponds to a network device that is associated with a local port of the switch, discarding the data packet.

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48.   The method of claim 47, wherein reading a selected source identifier comprises reading a media access control (MAC) address from an Ethernet packet.

49.   The method of claim 47, wherein reading a selected source identifier comprises

25 reading a Internet Protocol (IP) address.

50.   The method of claim 47, wherein reading a selected source identifier comprises reading at least a portion of a hierarchical address.

51.   The method of claim 47, wherein reading a selected source identifier comprises reading a port number of a universal datagram protocol.

52.   The method of claim 47, wherein reading a selected source identifier comprises reading a combination of two or more identifiers at different protocol levels for the data packet.

53.   A method for processing data packets in a ring switch of a ring network, the method comprising:

receiving a data packet at a ring port of the ring switch;

reading a selected destination identifier from the data packet; and

when the destination identifier for the data packet is in a table for the ring switch, switching the data packet to the port of the ring switch that is associated with the destination identifier.

54.   The method of claim 53, wherein reading a selected source identifier comprises reading a media access control (MAC) address from an Ethernet packet.

55.   The method of claim 53, wherein reading a selected source identifier comprises reading a Internet Protocol (IP) address.

56.   The method of claim 53, wherein reading a selected source identifier comprises reading at least a portion of a hierarchical address.

57.   The method of claim 53, wherein reading a selected source identifier comprises reading a port number of a universal datagram protocol.

58.   The method of claim 53, wherein reading a selected source identifier comprises reading a combination of two or more identifiers at different protocol levels for the data

packet.

59.   The method of claim 53, and further comprising reading a prepended, postpended or included identifier after reading the selected destination identifier.

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60.   The method of claim 59, wherein when the destination identifier for the data packet is not in a table for the ring switch or the data packet is a broadcast data packet, broadcasting the data packet to all ports of the ring switch that are associated with the common identifier or that include network devices that are associated with the common

10   identifier.

61.   The method of claim 59, wherein when the destination identifier for the data packet is a multicast identifier, broadcasting the data packet to all ports of the ring switch that are associated with the common identifier or that include network devices

15   that are associated with the common identifier.

62.   A method for processing data packets in a ring switch of a ring network, the method comprising:

        receiving a data packet at a ring-in port of the ring switch;

20   reading a selected source identifier of the ring packet;

        when the source identifier is not in a table for a port of the ring switch, storing the source identifier in the table with an indication that the identifier is for a network device associated with a ring-out port of the ring switch;

        reading a selected destination identifier from the data packet;

25   when the destination identifier for the data packet is in a table for the ring switch, switching the data packet to the port of the ring switch that is associated with the destination identifier;

        when the destination identifier for the data packet is not in a table for the ring switch or the data packet is a broadcast data packet, broadcasting the data packet; and

when the destination identifier for the data packet is a multicast identifier, broadcasting the data packet to all appropriate ports of the ring switch.

63. The method of claim 62, wherein reading a selected source identifier comprises reading a media access control (MAC) address from an Ethernet packet.

64. The method of claim 62, wherein reading a selected source identifier comprises reading a Internet Protocol (IP) address.

65. The method of claim 62, wherein reading a selected source identifier comprises reading at least a portion of a hierarchical address.

66. The method of claim 62, wherein reading a selected source identifier comprises reading a port number of a universal datagram protocol.

67. The method of claim 62, wherein reading a selected source identifier comprises reading a combination of two or more identifiers at the same or different protocol levels for the data packet.

68. The method of claim 62, and further comprising reading a prepended, postpended, or included identifier after reading the selected destination identifier.

69. The method of claim 68, wherein when the destination identifier for the data packet is not in a table for the ring switch or the data packet is a broadcast data packet, broadcasting the data packet to all ports of the ring switch that are associated with the common identifier or that include network devices that are associated with the common identifier.

70. The method of claim 68, wherein when the destination identifier for the data

packet is a multicast identifier, broadcasting the data packet to all ports of the ring switch that are associated with the common identifier or that include network devices that are associated with the common identifier.

5   71.   A method for processing data packets in a ring network, the method comprising:

receiving a data packet at a local port of a ring switch of the ring network;

attaching an identifier to the packet based on the local port of the ring switch such that the local port on the ring switch is associated with selected network devices of the ring network or a local port of at least one additional ring switch on the ring

10   network; and

transmitting the packet with the attached identifier on a ring port of the ring switch.

72.   The method of claim 71, wherein the identifier is prepended, postpended, or

15   included in the packet.

73.   The method of claim 71, wherein the identifier is attached to a multicast packet.

74.   A method for processing data packets in a ring network, the method comprising:

20   receiving a data packet with a prepended, postpended, or included common

identifier at a ring port of a ring switch of the ring network;

reading the prepended, postpended, or included identifier of the packet;

determining whether the common identifier is associated with a port or network device associated with the ring switch;

25   when the common identifier is associated with a port or network device of the

ring switch, removing the prepended, postpended or included common identifier; and

transmitting the packet out at least one local port of the ring switch based on the common identifier.